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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,866

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Thomas Kohler

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
595 MINER ROAD
CLEVELAND, OH 44143

EXAMINER

CORBETT, JOHN M

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,866	Applicant(s) KOHLER ET AL.	
	Examiner JOHN M. CORBETT	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8,9,11,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 3-7,10 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>14 September 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to because it refers to claims 1-14 on pages 2-5, which may create discrepancies and new matter issues if future claim amendments were to be made.

Therefore, the examiner suggests removing all references to the claims that are in the specification.

Appropriate correction is required.

2. The incorporation of essential material in the specification by reference to the publications, A. Katsevich "Analysis of an exact inversion algorithm for spiral cone-beam CT", Physics in Medicine and Biology, vol. 47, pp 2583-2597 (2002) and Bontus, Kohler, and Proska "A quasiexact reconstruction algorithm for helical CT using a 3-Pi acquisition", Medical Physics, vol 30, pp 2493-2502 (2003), is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

Drawings

3. The drawings are objected to because in Figure 4, the unlabeled boxes S1-S9 shown in the drawings should be provided with descriptive text labels. Corrected drawing sheets in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 11-12 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and/or lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following correction(s) may obviate the objection(s):

(Claim 11, line 1, “CT” was claimed, perhaps “Computer Tomography (CT)” was meant).

(Claim 12, line 1, “CT” was claimed, perhaps “Computer Tomography (CT)” was meant).

Note: The first instance of an abbreviation used in a claim should explicitly state the term or phrase which is being abbreviated.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 13-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With regards to claims 13 and 14, these claims are drawn to a computer program per se. A computer program per se is a set of abstract instructions. Therefore, a computer program is not a physical thing (product) nor a process as they are not “acts” being performed. As such, these claims are not directed to one of the statutory categories of the invention (See MPEP 2106.01), but directed to nonstatutory functional descriptive material.

It is noted that computer programs embodied on a computer readable medium or other structure, which would permit the functionality of the program to be realized, would be directed to a product and be within a statutory category of invention, so long as the computer readable

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medium is not disclosed as non-statutory matter per se (signals or carrier waves or presented over a network such as the Worldwide Web).

An example that would make the instant claims statutory would be to claim a computer readable medium encoded with a computer program which, when implemented on the data processor, instructs the data processor to perform the desired method steps. Hence, the claims would be directed to statutory subject matter. For examination purposes, the claim has been treated as such.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 8-9, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Besson (US 6,411,670 B1).

With respect to claim 1, Besson discloses a method of processing (via 36) a projection data set (Col. 3, line 65) of an object of interest (22), the projection data is acquired by means of a source of electro-magnetic radiation (14) generating a beam (16) and by means of a radiation detector (18) detecting the beam, the method comprising the step of:

rebinning the projection data set from a first geometry to a second geometry, resulting in a first rebinned projection data set;

a second radial resolution of the first rebinned projection data set in the second geometry is higher than a first radial resolution of the projection data set in the first geometry (Col. 7, line 52 – Col. 8, line 28).

With respect to claim 8, Besson further discloses the source of electro-magnetic radiation is a polychromatic x-ray source (Col. 3, line 53 – Col. 4, line 26 and Col. 10, line 40, the source has more than one energy via controller 28);

the source moves along a helical path around the object of interest (Col. 5, line 57); and the beam has one of a fan-beam geometry and a cone-beam geometry (Col. 7, line 59).

With respect to claim 9, Besson discloses a data processing device (Figure 2), comprising:

a memory (38) for storing a data set;

a data processor (36) for processing a projection data set of an object of interest (22),

the projection data (Col. 3, line 65) is acquired by means of a source of electro-magnetic radiation (14) generating a beam (16) and by means of a radiation detector (8) detecting the beam,

the data processor is adapted for performing the following operation:

rebinning the projection data set from a first geometry to a second geometry, resulting in a first rebinned projection data set;

a second radial resolution of the first rebinned projection data set in the second geometry is higher than a first radial resolution of the projection data set in the first geometry (Col. 7, line 52 – Col. 8, line 28).

With respect to claim 11, Besson discloses a CT scanner system (Figures 1-2), comprising:

a memory (38) for storing a data set;
a data processor (36) for processing a projection data set (Col. 3, line 65) of an object of interest (22),

the projection data is acquired by means of a source of electro-magnetic radiation (14) generating a beam (16) and by means of a radiation detector detecting the beam (18),

the data processor is adapted for performing the following operation:

loading the projection data set; rebinning the projection data set from a first geometry to a second geometry, resulting in a first rebinned projection data set;

a second radial resolution of the first rebinned projection data set in the second geometry is higher than a first radial resolution of the projection data set in the first geometry (Col. 7, line 52 – Col. 8, line 28).

With respect to claim 13, Besson discloses a computer readable medium encoded with a computer program (computers necessarily have a computer readable medium to store programs to include 38 and 36) for processing a projection data set (Col. 3, line 65) of an object of interest

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(22) which, when implemented on the data processor (36), instructs the data processor to perform the following operations:

loading the projection data set (computer necessarily loads data from memory);

rebinning the projection data set from a first geometry to a second geometry, resulting in a first rebinned projection data set;

a second radial resolution of the first rebinned projection data set in the second geometry is higher than a first radial resolution of the projection data set in the first geometry (Col. 7, line 52 – Col. 8, line 28).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Besson as applied to claim 1 above, and further in view of Sohval et al. (US 4,637,040).

With respect to claim 2, Besson discloses the method as recited above.

Besson further discloses a first focus data set;

the first focus data set is acquired at a first position relative to the detector of a focal spot of the electro-magnetic radiation emitted from the source (Col. 3, line 65, projection data acquired).

Besson fails to explicitly disclose a second focus data set;
the second focus data set is acquired at a second position relative to the detector of a focal spot of the electro-magnetic radiation emitted from the source.

Sohval et al. teaches a second focus data set (Abstract and Col. 11, lines 1-15);
the second focus data set is acquired at a second position relative to the detector of a focal spot of the electro-magnetic radiation emitted from the source (Col. 9, lines 46-49 and Figure 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Besson to include the second focus data set of Sohval et al., since a person would have been motivated to make such a modification to improve imaging by improving spatial resolution (Abstract and Col. 3, lines 61-62) as taught by Sohval et al.

Allowable Subject Matter

8. Claims 3-7 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With respect to claim 3, the prior art fails to teach or reasonably suggest a method including the step of:

rebinning the first rebinned projection data set from the second geometry to a third geometry, resulting in a second rebinned projection data set; and

the second rebinned projection data set comprises a third focus data set, when taken in combination with the other limitations of the claim. Claims 4-7 are indicate allowable subject matter by virtue of their dependency.

With respect to claim 10, the prior art fails to teach or reasonably suggest a device including a data processor further adapted for performing the operation of rebinning the first rebinned projection data set from the second geometry to a third geometry, resulting in a second rebinned projection data set; and

the second rebinned projection data set comprises a third focus data set, when taken in combination with the other limitations of the claim.

9. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if rewritten to overcome the objection(s) set forth in this Office action.

With respect to claim 12, the prior art fails to teach or reasonably suggest a system including a data processor further adapted for performing the following operation of rebinning the first rebinned projection data set from the second geometry to a third geometry, resulting in a second rebinned projection data set; and

the second rebinned projection data set comprises a third focus data set, when taken in combination with the other limitations of the claim.

10. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if rewritten to overcome the rejection(s) under 35 U.S.C. 101 set forth in this Office action.

With respect to claim 14, the prior art fails to teach or reasonably suggest a configuration including a data processor perform the operation of
rebinning the first rebinned projection data set from the second geometry to a third geometry, resulting in a second rebinned projection data set; and
the second rebinned projection data set comprises a third focus data set, when taken in combination with the other limitations of the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN M. CORBETT whose telephone number is (571)272-8284. The examiner can normally be reached on M-F 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. M. C./
Examiner, Art Unit 2882

/Edward J Glick/
Supervisory Patent Examiner, Art Unit 2882